Title: LENINGRAD AFFILIATE OF THE ALL-UNION SCIENTIFIC RESEARCH INSTITUTE OF GAS AND SYNTHETIC LIQUID FUELS (LenVNIGI) (USSR)

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LENINGRAD AFFILIATE OF THE ALL-UNION SCIENTIFIC RESEARCH INSTITUTE OF GAS AND SYNTHETIC LIQUID FUELS

(LenVNIGI)

Location:

No 1 Lubenskaya, Leningrad 84.

Telephone: 2-72-57; 602-89 and 101-14.

LenVNIGI is a bordinate to the All-Union Institute of Gas and is within the Main Administration of Industries for Gas and Synthetic Liquid Fuels (GlavGaz NKTP).

Director:

V. M. Chubayev

Deputy Director for Scientific Matters:

Professor B. K. Klimov

LenVNIGI conducts scientific research in the field of chemical and thermal conversion of peat, shale, coals (gasification, semi-coking, hydrogenation), studiesof the products of such conversions, chemical processing of natural gases and studies of the genesis of coals.

Scientific Sectors:

Processing of Natural Gases

Raw Mate ials and Hydrogenation

Semi-Coking and Coking of Local Fuels

Ash

Gasification.

Leading Scientific Personnel and Specialists:

Prof N. A. Klyuvkin - Chief of Sector of Natural Gases

Prof V. A. Lanin - Chief of Sector of Semi-coking and Coking of Local Fuels

Prof N. A. Orlov - Chief of the Sector of Raw Materials and Hydration

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Leading Scientific Personnel and Specialists: (Cont'd)

Engineer A. A. Bari - Chief Engineer of the Sector of Natural Gases

Engineer V. A. Shukov - Chief of the Sector of Gasification

A. A. Kiselev - Chief engineer of the Experimental Plant

S. M. Mendeleva - Chief of the Sector of Semi-coking and Coking of Local Fuels

V. I. Ovyseychik - Chief of the Sector of Raw Materials and Hydration

V. P. Shemyakov - Chief of the Ash Sector

Plant and Experimental Installations:

Furnace Shop - tunnel furnace with condensation equipment as well as apparatus for trapping gasoline from gas which has been submitted to desulfurization (sweetening).

Mityurev is the chief of this shop. Studies conducted to determine the effect of distilling shale in tunnel furnaces for the production of tar oil and gas.

Capacity - 30 tons of shale per 24-hour period;

Capitalization - 1,337,000 rubles.

Tar Distillation Shop - chief of this shop is B. P. Fradkin. Equipment intended for the distillation of shale tar for the purpose of obtaining separate fractions and rectification (obtaining the products of distillation).

Capacity - 5-6 tons per 24-hour period.

Capitalization - 9,800,000 rubles.

Installation for the Hydrogenation of Shale Tar - Chief of installation is Polozov. Purpose of the installation is to obtain a light fuel.

Capacity - 100 to 200 kilograms of tar per 24-hour period.

Capitalization - 154,000 rubles.

Installation for the Aromatization of Shale Tar - Chief of the installation is Zelenin. Serves for the production of aromatic hydrocarbons (toluene, benzene, xylene, etc.) and of gas which is valuable as crude material for the production of alcohols and glycols.

Production capacity - 100 kilograms of 200 to 300 degree fraction per 24-hour period;

Capitalization - 385,000 rubles.

Boiler Installation - Chief of shop, Alekseyev. Intended for experiments on the combustion of shale and the obtaining of shale ash for use in the manufacture of cement.

Production capacity - 50 tons of steam per 24-hour period;

Capitalization - 5,544,000 rubles.

Total number of workers	432
Scientific personnel	105
Budget for 1935	33,600,000 rubles.

Basic Problems Currently being Studied at LenVNIGI:

Utilization of natural gases - A. A. Bari;

Chemical processing of the methane in natural gases - Prof N. A. Klyuvkin;

Genesis of coals - Prof N. A. Orlov;

Obtaining of light fuels from local raw materials - Prof V. A. Lanin;

Construction of large generators for the production of gas having a high calorific value from shale and peat - Prof B. K. Klimov and Engr K. A. Zhuravlev;

Utilization of shale ashes - V. P. Chemyakov.

Technical Aid is Rendered by LenVNIGI to Industry on the Following Questions:

Utilization of low grade local fuels as fuel and chemical raw materials;

Thermal processing of local fuels - gasification of peat and shale, distillation of shale, and the coking of peat;

Processing of peat and shale tars;

Utilization of shale and peat ash

Chemical processing of peat and shale

Utilization of natural gases.

This institute was organised on the basis of the Leningrad Scientific Research Shale Institute, Experimental Shale Distillation Plant, Sector of the Thermal Processing of Peat of the Leningrad Affiliate of InsTorf, the Coke Chemical Laboratory of TsNIGRI and the Central Laboratory of StroyGas.

The institute was able to devise a method for the decomposition of shale with maximum output of high calorie gas suitable for transmission over long distances.

Numerous experiments were conducted with Gdovskiy to determine their bitumen content and to study the behavior of bitumenized shale obtained in low temperature decomposition. Best results were obtained with shale which was decomposed at 380 to 400 degrees Centigrade. It was finally determined that bitumenized shale after extraction with gasoline givesman end product - shale bitumen, which is very similar to gilsonite in its characteristics and can be used in the lacquer and paint industry and insulation industry.

In the field of gasification the institute is attempting to produce double water gas from peat utilizing the principle applied by Prof Schtrach (Vienna) in the case of brown coals. Special equipment is being built for the generation of double water gas from peat and the equipment will be 100% Soviet made.

LenVNIGI also recommended methods for the manufacture of road tars from the heavy fractions of shale bitumens.

Carbon black obtained from natural gas isused as a valuable component in the rubber industry. Plans are being considered for the construction of a carbon black plant in the natural gas region of Saratov Kray. The waste gas of the carbon black process which has a 75% hydrogen content and is obtained as a result of cracking methane, will be used either for heating reactors or for the production of pure hydrogen.

A special experimental plant is being constructed for the manufacture of thermo-blocks (probably insulating brick) from shale ash.

Chemical studies have resulted in determination of the chemical structure of Gdovskiy shale. The radioactivity of dictionemic shale, chemical processes taking place in the inorganic ingredient of shale, and all processes which occur during the thermal conversion of shale have also been investigated.

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